Invertebrate Workgroup
7 March 2002

WorkGroup Participants:

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Leader: Jil Swearingen, CUE IPM Coordinator
Members: Edd Barrows, Georgetown University
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Purpose:

Develop a long-term monitoring plan of invertebrates in the National Parks of the National Capital Region to ensure to preserve and enhance the park's most important natural resources.

Outcomes:

As a result of the meeting, we will:
(1) develop a draft list of stressors, sources, and their ecological effects to invertebrate populations within the National Parks of the National Capital Region
(2) identify the severity of each threat
(3) begin to identify potential vital signs to monitor invertebrates.

Discussion

See table below for details. Problems include: How to interpret the Severity. Drought, for example, can be evaluated by looking at the impact of droughts over a 20 year period or one can evaluate the drought in term of the impact if a drought occurred during any given year. The impact on an invert. Population would be variable.

Next steps

At the 23 May meeting - complete this draft table with emphasis on identifying high severity threats and potential indicators.

Resource Component	***Stressor***	***Sources***	***Ecological Effects***	***Severity of Threat*** *(High – Medium – Low - Unknown)*	***Indicator/Vital Sign***
	Drought	Natural	Various: Habitat modification and direct mortality	Variable	
		Anthropogenic	Various: Habitat modification and direct mortality	Variable	
	Flooding	Natural	Various	Variable	
		Anthropogenic	Various	Variable	
	Water Quality	Chemical	Direct Mortality	Variable	
		Sediment	Habitat Change	Variable	
	Air Quality	Ground level Ozone	Cell Damage	Inconclusive	
		Chemicals	Mortality and sublethal effects	Unknown	
			Habitat change	Unknown	
	Landscape Modifications	Human	Habitat change / loss	Variable	
	Urban Sprawl	Human	Habitat change / loss	Variable	
	- Roads (new)				
	- Road design				
	- Road maintenance (sand/salt)				
	- Road use				
	- Heat island effect				
	- Light (artificial)				
	- Humidity				

	Urbanization	Natural	Various		
	Exotic Species				
	- insects (Asian lady beetle, Asian longhorn beetle, gypsy moth, Hemlock W. Adelgid)				
	- other inverts (Zebra mussle, earthworm)				
	- pathogens (non-native including Fungi [Dutch Elm], bacteria, other.				
	- plants (invasive)				
	- plants (other harmful plants [pathogens, pollinator stealers)				
	- vertebrates (perhaps birds, mammals, fish, reptils)				
	Deforestation				
	Fire (lack of natural fire regime)				
	Loss of stream habitat				
	Global warming				
	Human population growth				
	Noise pollution				
	Soil Disturbance (artificial such as change to stream bottoms, lake bottoms, etc.)				
	Recreation (impact to water surface conditions which impact egg-laying)				
	Agriculture (GMO)				
	Pest Management				

	(Pesticide use including lawn care, forest pest management, other)				
	Collecting				